EXAMINERS NOTES

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United States Patent [19]

Wong

[11] **Patent Number: 6,115,690**

[45] **Date of Patent: Sep. 5, 2000**

[54] **INTEGRATED BUSINESS-TO-BUSINESS WEB COMMERCE AND BUSINESS AUTOMATION SYSTEM**

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[22] Filed: **Dec. 22, 1997**

[51] **Int. Cl.**[7] **G06F 17/60**

[52] **U.S. Cl.** **705/7**; 705/1; 705/8; 705/30; 705/34; 364/709.06; 364/479.07

[58] **Field of Search** 235/380; 364/468.02, 364/468.14, 468.21, 479.06, 479.07, 479.08, 705.06, 709.06; 705/34, 1, 30, 7, 8

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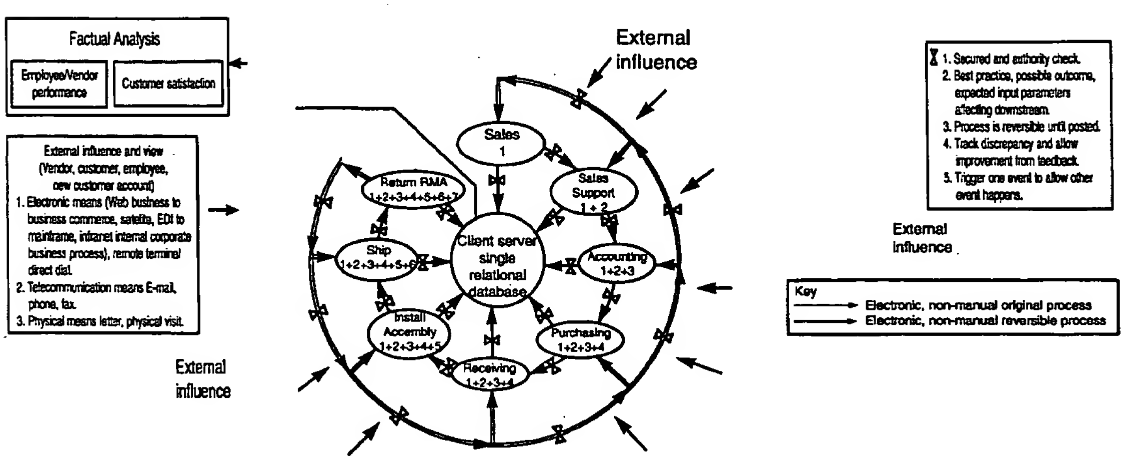
[57] **ABSTRACT**

A software system business-to-business Web commerce (Web business, or e-business) and automates to the greatest degree possible, in a unified and synergistic fashion and using best proven business practices, the various aspects of running a successful and profitable business. Web business and business automation are both greatly facilitated using a computing model based on a single integrated database management system (DBMS) that is either Web-enabled or provided with a Web front-end. The Web provides a window into a "seamless" end-to-end internal business process. The effect of such integration on the business cycle is profound, allowing the sale of virtually anything in a transactional context (goods, services, insurance, subscriptions, etc.) to be drastically streamlined.

85 Claims, 395 Drawing Sheets

Microfiche Appendix Included
(5 Microfiche, 20 Pages)



US-PAT-NO: 6115690

DOCUMENT-IDENTIFIER: US 6115690 A

TITLE: Integrated business-to-business Web commerce and business automation system

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US Patent No. - PN (1):

6115690

Brief Summary Text - BSTX (31):

by user errors that go undetected by the system, by overcharges for freight, or numerous other circumstances. Return requests, Return Merchandise Authorizations, credit memos and accounting adjustments may all be handled electronically.

Detailed Description Text - DETX (18):

The user by choosing the appropriate action within the pop-up menu can create a quote for the specified items and quantities, can cancel and empty the "shopping basket," can go back to the Products List, or can go back to the Search for Products screen. When a quote is created, it is displayed as shown, for example, in FIGS. 7A-7C. A quote number and the quote date are displayed at the top of the quote. The salesman assigned to the account is displayed, together with account-specific defaults concerning shipping and payment terms. Then the items quoted are displayed, including description, manufacturer part number, unit price, quantity, and extended price. The sub-total, applicable tax, and total are calculated and displayed. A notes box is also provided for the user to enter notes regarding the quote.

Detailed Description Text - DETX (22):

Once all of the requested information has been provided, the user then chooses from among possible actions, including making changes to the quote, going back to the Products List, submitting the quote to the sale representative, close the quote without saving any changes that the user may have made, or save the quote without submitting it. Note that a particular user, however, may have authority only to obtain quotes but not to submit quotes (place orders), or may have a purchase limit for a single purchase or for a predetermined time period (e.g., weekly, monthly, quarterly). If the user attempts to exceed his authority, the system will display a dialog informing the user that the selected action cannot be taken.

Detailed Description Text - DETX (23):

In practice, if a user is allowed to obtain quotes but not submit quotes, the user will obtain and save a quote, note the quote number, and notify a superior having purchasing authority (e.g., via email) of the quote number. The person having purchasing authority may then use the quote number to retrieve and review the quote and submit the quote if it is in order.

Detailed Description Text - DETX (34):

Most often, parts will not be ordered by the customer but rather by service personnel. Nevertheless, customers are able to track the status of the part order themselves. Navigating to a Tracking page, FIG. 25, causes this option and various other tracking options to be displayed. From this page, the customer can track sales order status, RMA and service part status as just described, product purchase history, return and service history, customer invoice and credit memo status, etc. A text box for special comments and phone/fax/email fields are provided as before.

Detailed Description Text - DETX (43):

If the user is a customer, then customer invoice search options are displayed as shown, for example, in FIG. 39. FIG. 40 shows a display of customer invoice records resulting from a search, in this example a customer invoice that was partially paid and a credit memo the credit of which has not been fully taken. Further details regarding a record may be shown by checking the corresponding box and clicking the Take Action button. A display such as that of FIG. 41 then results.

Detailed Description Text - DETX (83):

During the foregoing process, the user may enter **notes** within a screen 6101. This screen is displayed whenever the quote or MWS is displayed. If a quote is created on the Web, a separate **notes** screen is provided for customer **notes**. A corresponding **notes** screen for internal use only is provided for all quotes.

Detailed Description Text - DETX (86):

Note that, during the foregoing process, different people may have different limited privileges. Also, throughout the foregoing process and throughout the system generally, at each information entry point, the user's input is checked for accuracy in order to prevent common mistakes from occurring.

Detailed Description Text - DETX (108):

5. Purchasing **notes** can only be viewed by authorized personnel.

Detailed Description Text - DETX (118):

Referring to FIG. 68, throughout the foregoing processes, and in particular receiving, installation and shipping, **notes** conveying instructions regarding specific items may be displayed by double-clicking an item to cause a item detail display to appear. Included within the item detail display are several **notes** boxes, including boxes for unique installation **notes,** standard default **notes** from the customer file, unique shipping **notes,** standard default shipping **notes** from the vendor file (for RMA), RMA installation **notes,** receiving **notes,** etc.

Detailed Description Text - DETX (119):

The PSRI output display also includes an "Expedite" view, shown in FIG. 69. The expedite function is to minimize delay in receipt of ordered products. Expedite actions include entering the Estimated Time of Arrival (ETA) of a product based on contact with the vendor and/or shipper and marking items in accordance with various expedite categories, as well as entering **notes** if necessary concerning the problem and expected solution.

Detailed Description Text - DETX (128):

As shown in FIG. 76, a lookup table may be used complete various fields of an RMA record based on the selected return type. If a return is for credit, for example, then return type 1 is the corresponding return type. Depending on whether payment was by check, credit card or credit **memo,** different fields may be applicable. In the present example, however, the mode of payment does not affect the manner in which the RMA is completed. As noted previously, an RMA has both a customer side and a vendor side. In FIG. 76 therefore, each table cell has an upper half corresponding to the vendor side (V) and a lower half corresponding to the customer side (C). To take a few example fields, in the case of a return for credit, no replacement product is called for, hence the Repl MWS column is marked N, for no. Since no replacement product is expected, then on the vendor side, the Rec'd column is N/A, and on the customer side, the Ship column is N/A. Similar logic dictates the way in which the remainder of the table is completed.

Detailed Description Text - DETX (145):

A further important feature also greatly facilitates convenient navigation and ease of use. In most systems, to display related records, a search editor is used to enter a search. In the present system, by contrast, a "related-switch" menu bar is provided within most displays. Using this related switch feature, a user may select one or more records within the output display and select a related file from a pop-up of related files. The system then searches in the related file for records related to the selected records and displays the related records in the output display format of the related file. In the case of RMAs, for example, the related switch capability may be used to switch to related customer invoices, vendor invoices, credit **memos,** etc. One file may be related to another file but only indirectly, through a third file. In this instance, an intermediate search is required, the results of which are not displayed. Of course, the number of intermediate files may be more than one.

Detailed Description Text - DETX (150):

The knowledge base affects user interaction with the system through two different kinds of displays, a data input display and a process display. The data input display is used to actually enter data into the system. During the course of data entry at entry points E1-E9 (FIG. 59), rigorous entry qualification occurs to eliminate errors. In the case of PSRI, for example, during receiving, only ordered items are allowed to be received. To cite a further example, during vendor invoice entry, described hereinafter in relation to FIG. 121 through FIG. 123, the system detects an attempt to enter a duplicate invoice number and prevents the duplicate from being entered. The process display is used to act on the data within the system to move an item

to the next stage, and in the course of such action has the effect of changing the status of records acted upon. In the case of RMAs, for example, the user may easily, with the click of a button, approve or cancel an RMA, issue a customer credit **memo**, change the N/A settings of the RMA, etc. In the case of expedite, the user may easily, with the click of a button, record the reason that a product has not been received. To cite further examples, in the case of vendor invoices and customer invoices, described hereinafter, the user may easily, with a click of a botton, mark a vendor invoice for approval or cause an aging report window to be displayed for customer invoices.

Detailed Description Text - DETX (159):

When an order is shipped, a customer invoice is automatically issued, i.e., entered into the computer system. If paper invoices are required, then at regular intervals (each day, for example) an accounts payable clerk prints out, checks and mails customer invoices issued during the preceding interval. (Alternatively, the printing and mailing of customer invoices may also be automated.) In an exemplary embodiment, invoices are issued using the "Issue invoices" option within the customer invoice file. A customer invoice screen display is shown in FIG. 83. With the passage of time from the invoice date, invoices pass from one category to another, e.g., 30 days, 60 days, 90 days, etc. At any time, the accounts payable clerk may view invoices within different categories. Also, as is the case with other output screen displays, the user is able to manipulate information and interact with the system, e.g., to analyze an account, add a comment or **note**, etc., all without paper and pencil.

Detailed Description Text - DETX (228):

Screen displays used for factual performance evaluation in accordance with an exemplary embodiment of the invention are shown in FIG. 118, FIG. 119 and FIG. 120, respectively. Selection of an employee is accomplished as illustrated in FIG. 118. Referring to FIG. 119, performance results may be viewed for a single period or multiple periods, with the period being user selectable (a day, a week, a month, a quarter, etc.). In the case of the single period display, performance results for various performance metrics in different categories and sub-categories are displayed, for example: Productivity (A), including quantity per period (A1), dollar volume per period (A2) and percent profit per period (A3); Quality (B), including timliness (B1) and customer credit **memos** (B2); and Profitability (C). In the case of the multi-period display, the same information is viewable for multiple periods but, because of display contraints, not all of the information at the same time. Rather the user selects the categories and sub-categories of interest for viewing at any particular time. For example, if sub-category A2 is selected, then dollar volume per period is displayed for all of the periods (e.g., six).

Detailed Description Paragraph Table - DETL (2):

Claims Commission Reg Quick invoice lookup Quick credit lookup Get register Get not approved Get approved but not paid Approve Disapprove Change payment date Pay Commissions Quick lookup by period Quick transaction lookup Quick PO lookup Quick MWS lookup Quick invoice lookup Quick credit **memo** lookup Get not approved Approve Get approved Schedule payment **Notes** Hold Get hold Reset back 1 Check commissions Recalculate commissions Change commission Email Contacts File CustCredMemos Quick **memo** lookup Credits not taken Credits taken Credits on hold Internal credits not taken Internal credits taken Hold credit **memo** Internal **notes** Customer **notes** Internal status change Customers Add employee purchase record Approve customer Find employee List employees CustPayments Get not approved Get not posted Approve Post Cust.sub.-- invoices Quick invoice lookup Cust invoice summary Print selection Comm report Get AR report selection Get not issued Get not paid Get no charge Get pre-paid Close-no charge Split invoice Join 2 invoices Issue invoices Check for not issued invoices Defaults DropShipments FAX Templates Item Details Items Sold Quick MWS# lookup Add MWS to fast order Open order reports Expedite/availability Customer **notes** CSR **notes** Status (restricted) Expand to all items sold Remove shipped Check selection again Update MWSs Clear updates Tech expedite Clear tech expedite Get in house not rcvd Receive in house Get installation not rcvd Receive installation MWSLog OverUnderPay Get not reconciled Get not cleared Get open Close Packing Slips Partners Find by expense account Vendor priority maintenance Personnel PID ItemsSold PIDs Products Purchase Stats Purchasing Quote Detail Rcvd Boxes Receiving Receive Installation Update MWSs Double, wrong, defective, or no MWS Fill allocation Freight check Recover receiving register Report RMA Quick RMA lookup Quick case lookup Quick PO/PID/PRN/RFQ Get Web RMAs Update RMAs Expected cred summary Edit fax cover sheet **notes** Sales Records Quick MWS# lookup Quick quote# lookup Quick PO/RFQ/PID/PRN LU/conf. PurchChecks Update MWSs Expedite/availability/purch Urgent Not Urgent Daily PO confirmation Get quotes Print quote confirmation Quotes requiring REVIEW Cancel REVIEW Get purchasing records Print purchase summary Clear updates Lock Unlock Get unlocked Change TPO to real PO Get temporary POs Get Web quotes Sales.sub.-- Reps Sales.sub.-- Support Sales.sub.-- Taxes Recalc selection Add sales tax Shipping Quick lookup by period Quick lookup by pickup number .sub.-- Following works in selection Get not reconciled open Get not reconciled closed Get reconciled open Get reconciled closed Installation Update MWSs Freight check Reconcile freight Recover register Merge registers TaxRegister Due dates Update user selection Print user selection Sets window Tax.sub.-- Tables Ven Pmnt Regs Quick invoice lookup Quick credit lookup Get register Get not approved Get approved but not paid Approve Disapprove Change payment date Pay Get regs with credit balances Vendors with credit balances Close register Open register VenCollection Quick **memo** lookup Quick invoice lookup Quick payment register lookup Get not used Get excess/not distributed Get distributions Get expected **memos** Reconcile expected **memo** Get not pre-approved Pre-approve Get pre-approved Approve Get approved Schedule Reset status back 1 Cancel

credit memo VenMultiCred VenRecExpCred Ven.sub.-- Invoices Quick invoice lookup Quick voucher lookup Quick check lookup Search selection by date Verify selection Daily verification Get all not paid Get not reconciled Get reconciled Reconcile with credit Pre-approve Get pre-approved Remove pre-approved APPROVE Get approved Schedule payments Schedule pre-paid payments Close selection HOLD selection Get hold Reset status back 1 Edit terms/payment/vouchers Integrity check Temporary notes Update invoice Mark ready for review Get ready to review Mark reviewed Get reviewed

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Claims Text - CLTX (48):

automatically generating a credit memo for said returned item.